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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/739,817	12/20/2000	Kantaro Miyano	P20402	4059

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[REDACTED] EXAMINER

LEE, JOHN J

ART UNIT	PAPER NUMBER
2684	[REDACTED]

DATE MAILED: 08/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/739,817	MIYANO ET AL.	
	Examiner	Art Unit	
	JOHN J LEE	2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 20 December 2000.

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-17 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1,2,4-7 and 9-15 is/are rejected.

7) Claim(s) 3,8,16 and 17 is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.

4) Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.

5) Notice of Informal Patent Application (PTO-152)

6) Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1, 2, 4-7, and 9-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Langston (US Patent number 6,553,239) in view of Runyon et al. (US Patent number 6,067,053).

Regarding **claim 1**, Langston discloses that a radio transmission apparatus comprising:

an antenna (Fig. 2) comprised of first and second linear polarization antenna elements (34, 31 in Fig. 2) perpendicular to each other (column 3, lines 21 – 40 and Fig. 1, 2);

modulating means for modulating transmission data to output a modulated signal (Fig. 9, 14 and column 5, lines 49 – column 6, lines 13); and

phase controlling means for providing a degrees phase difference to the modulated signal corresponding to the transmission data to output (column 4, lines 44 – column 5, lines 29, Fig. 4, 9, and column 5, lines 49 – column 6, lines 26) .

Langston does not specifically disclose the limitation “phase controlling is providing a 180 degrees phase difference to the modulated signal”. However, Runyon discloses the limitation “phase controlling is providing a 180 degrees phase difference to

the modulated signal" (Fig. 5, 16, 18 and column 20, lines 47 – column 21, lines 18). It would have been obvious to one having ordinary skill in the art, at the time the invention was made to modify the system of Langston as taught by Runyon. The motivation does so would be to enhance a polarized array antenna to achieve wave radiators exhibiting dual polarization states and symmetric radiation patterns in antenna system.

Regarding **claim 2**, Langston discloses that the first and second linear polarization antenna elements are located with longitudinal directions thereof crossing (Fig. 1, 2 and column 4, lines 44 – column 5, lines 29).

Regarding **claim 4**, Langston discloses that the first and second linear polarization antenna elements are located at a spaced interval with a longitudinal relationship between the elements indicative of having an angle (column 4, lines 44 – column 5, lines 29, Fig. 4, 9, and column 5, lines 49 – column 6, lines 26).

Regarding **claim 5**, Langston discloses that the phase controlling means is multiplying means for multiplying a transmission signal by a reference signal to multiply a reference signal that inverts a polarity of the transmission signal corresponding to the reference signal (column 7, lines 63 – column 8, lines 61 and Fig. 14).

Regarding **claim 6**, Langston and Runyon disclose all the limitation, as discussed in claim 1. Furthermore, Langston further discloses that spreading means for spreading the modulated signal to output a spread signal (column 7, lines 63 – column 8, lines 67 and Fig. 14).

Regarding **claim 7**, Langston and Runyon disclose all the limitation, as discussed in claims 1 and 2.

Regarding **claim 9**, Langston and Runyon disclose all the limitation, as discussed in claims 1 and 4.

Regarding **claim 10**, Langston and Runyon disclose all the limitation, as discussed in claims 1 and 5.

Regarding **claim 11**, Langston and Runyon disclose all the limitation, as discussed in claim 1. Furthermore, Langston further discloses that an antenna comprised of first antenna element and second antenna element that provide different planes of polarization (abstract, Fig. 1, 2, and column 1, lines 63 – column 2, lines 7).

Langston does not specifically disclose the limitation “switches the first antenna element and the second antenna element to input the modulated signal thereto corresponding to the transmission data”. However, Runyon discloses the limitation “switches the first antenna element and the second antenna element to input the modulated signal thereto corresponding to the transmission data” (Fig. 17 and column 26, lines 59 – column 27, lines 23). It would have been obvious to one having ordinary skill in the art, at the time the invention was made to modify the system of Langston as taught by Runyon. The motivation does so would be to improve a polarization control for desired output in antenna system.

Regarding **claim 12**, Langston and Runyon disclose all the limitation, as discussed in claims 6 and 11.

Regarding **claim 13**, Langston and Runyon disclose all the limitation, as discussed in claims 1 and 11.

Regarding **claim 14**, Langston and Runyon disclose all the limitation, as discussed in claims 6 and 11.

Regarding **claim 15**, Langston and Runyon disclose all the limitation, as discussed in claim 1. Furthermore, Langston further discloses that for receiving a signal transmitted with a different plane of polarization (abstract, Fig. 1, 2, and column 1, lines 63 – column 2, lines 7);

determining means for making a data determination based on reception signal (column 3, lines 41 – column 4, lines 2 and Fig. 1).

Langston does not specifically disclose the limitation “for making a data determination a detected result on the reception power (electric field strength) of the signal”. However, Runyon discloses the limitation “for making a data determination a detected result on the reception power (electric field strength) of the signal” (Fig. 5, 18 and column 20, lines 47 – column 21, lines 39). It would have been obvious to one having ordinary skill in the art, at the time the invention was made to modify the system of Langston as taught by Runyon. The motivation does so would be to improve a reception quality in antenna system.

#### ***Allowable Subject Matter***

3. Claims 3, 8, 16, and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record fails to disclose the limitation "first and second linear polarization antenna elements are indicative of twisted positions, while with respect to data at the time of weak electric field strength, inverting the data at the time of strong electric field strength to make a determination, and an X-NOR gate receiving as its input an output of the D-flip flop and the judged result" as specified in the claims.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Shapira (US Pub. No. 2003/0073463) discloses Active Antenna Array Configuration and Control for Cellular Communication Systems.

Eidson (US Patent number 6,411,824) discloses Polarization-Adaptive Antenna Transmit Diversity System.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks  
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or faxed to:

(703) 308-9051, (for formal communications intended for entry)

Or:

(703) 308-6606 (for informal or draft communications, please label  
"PROPOSED" or "DRAFT").

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John J. Lee** whose telephone number is **(703) 306-5936**. He can normally be reached Monday-Thursday and alternate Fridays from 8:30am-5:00 pm. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, **Nay Aung Maung**, can be reached on **(703) 308-7745**. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is **(703) 305-4700**.

J.L  
July 26, 2003

John J Lee

